

Indian Maritime University
(A Central University, Govt. Of India)
End Semester Examination Dec-2019/Jan-2020
B. Tech(Marine Engineering)
Semester –VII/VIII
Advanced Marine Technology
(UG11T2704/UG11T1804)

Date:16-12-2019

Time:3 Hrs

Max Marks:**70**

Pass Marks: **35**

Part – A (compulsory)

Answer the following (10x2=20 Marks)

1. Expand following abbreviations:
ALARP, OCIMF, MSDS, MCR
2. Bridge indicator panel for engine room machineries have minimum possible alarms and instrumentations sufficient enough to warn the watch keeper. List these alarms and instrumentations.
3. What should be the qualities of inert gas used for atmosphere control on board LPG carriers?
4. With reference to a reciprocating oil free compressor used for LPG reliquefaction, explain how 'capacity control', 'crankcase heating' and 'cooling' is done.
5. Discuss briefly the problem of stability on car carriers.
6. Discuss cargo tank stripping arrangement on chemical tankers with a simple sketch.
7. What are the disadvantages of larger oil tankers like VLCC and ULCC?
8. What is condition assessment of Bulk Carriers?
9. Enumerate key features of the common rail system with reference to modern large two stroke engines.
10. What is NO_x Technical File?

Part – B

Answer any 5 out of 7 questions (5 x 10= 50 marks)

11. (a) Sketch and describe a two-stage direct reliquefaction cycle with inter-stage cooling. (7 marks)
(b) List the alarms and safety devices on reliquefaction plant of fully refrigerated LPG carriers. (3 marks)
12. (a) Sketch and describe the 'absorption drier' used for inert gas generators on board liquefied gas carriers. (5 marks)
(b) Discuss the ventilation arrangements in the car decks of a car carrier. (5 marks)

- 13.(a) Discuss general types of chemical tankers. (3 marks)
(b) Sketch and describe materials for tank coatings and construction. (7 marks)
- 14.(a) State accelerated phase-out schedule for single-hull tankers as per MARPOL73/78. Define various categories of oil tankers related to the same. (4 marks)
(b) Sketch and describe workings of 'Deck Water Seal' and 'PV Breaker' with reference to inert gas system of an oil tanker. (6 marks)
- 15.(a) Explain stress considerations with regard to loading and discharging of a bulk carrier. (6 marks)
(b) Explain charge air humidification with examples? (4 marks)
16. (a) Discuss "condition monitoring system" as used in intelligent engines to evaluate general condition of the engine. (6 marks)
(b) Draw a schematic (block) diagram showing the concept of an intelligent engine (4 marks)
17. (a) Discuss main engine starting and reversing process from local and remote position with the help of a simple block diagram. (7 marks)
(b) What is "cargo containment system" of a liquefied gas carrier? (3 marks)
